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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/028,228	12/20/2001	David J. Parkinson	M61.12-0413	1828

27366 7590 03/06/2006

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EXAMINER	
WOZNIAK, JAMES S	
ART UNIT	**PAPER NUMBER**
2655	

DATE MAILED: 03/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/028,228	PARKINSON ET AL.	
	Examiner	Art Unit	
	James S. Wozniak	2655	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 December 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14 and 17-36* is/are rejected.

7)☒ Claim(s) *15 and 16* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12/20/2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. In response to the office action from 10/3/2005, the applicant has submitted an amendment, filed 12/9/2005, amending claims 1, 2, 4, 6, 8-10, 12, and 17, while arguing to traverse the art rejection based on the limitation regarding limiting a search for a licensing element, which is capable of being in a non-local linguistic relationship with a token, to a segment *(Amendment, Page 8)*. The applicant's arguments with respect to claims 1-32 have been fully considered but are moot with respect to the new grounds of rejection, necessitated by amendment and in view of Cardie et al *("A Cognitively Plausible Approach to Understanding Complex Syntax," 1991)*. The applicant's arguments with respect to Claims 33-36 have been fully considered, however the previous rejection is maintained due to the reasons listed below in the response to arguments.

Response to Arguments

2. Applicant's arguments have been fully considered but they are not persuasive for the following reasons:

With respect to **Claim 33**, the applicant argues that Heidorn et al *(U.S. Patent: 5,966,686)* fails to teach a location of a gap in a relationship in a text segment *(Amendment Pages 10-11)*. In response, the examiner notes that Fig. 44 of Heidorn shows a field within a

parse structure indicative of a relationship gap *(empty noun phrase node, Element 4403)* in a relative clause. Thus, since Heidorn teaches a field (empty noun phrase node) within a parse structure indicating the location of a gap in a relationship (within a relative clause), claim 33 remains rejected.

With respect to **Claim 35**, the applicant argues that Heidorn fails to teach that a filler can be placed in a first and second gap during a syntactic parse *(Amendment, Page 11)*. In response the examiner notes that Heidorn teaches a "person" segment of text that can act as a filter in a relationship with a second portion of text as a deep subject (first relationship gap) and a direct object (second relationship gap) (Fig. 58). Also, the recitation "during syntactic parsing" has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). Thus, since Heidorn teaches a filler ("person") that can be placed in a first and second gap (dsub and dobj relationship gaps) during a parsing process, claim 35 remains rejected.

The claims dependent upon claims 33 and 35 further limit their rejected base claims, and thus, also remain rejected.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. **Claims 1-10 and 14** are rejected under 35 U.S.C. 102(b) as being anticipated by Cardie et al *("A Cognitively Plausible Approach to Understanding Complex Syntax," 1991)*.

With respect to **Claim 1**, Cardie discloses:

Identifying a segment of the text (text parsing resulting in identified actor and object segments, Page 120; Fig. 4);

Identifying a token outside of the segment *(gap, Page 120)*;

Based on properties of the token and properties of the segment, determining that the token may have a non-local linguistic relationship to a licensing element in the segment *(syntactic prediction of "the boy" antecedent as an initial slot filler, Page 120, Fig 5)*;

Searching the segment for a licensing element in the segment that is capable of being in a non-local linguistic relationship with the token wherein searching is limited to the segment *(final determination of an antecedent "the boy" as an indirect and direct object elements using a child lexically indexed control kernel (LICK) and syntactic information, Page 120, Fig. 6)*.

With respect to **Claim 2**, Cardie teaches the syntactic parsing as applied to Claim 1.

With respect to **Claim 3**, Cardie teaches searching components within a main clause for elements that correspond to elements within a subordinate clause *(Fig. 4; Page 120)*.

With respect to **Claim 4**, Cardie teaches a lexically indexed control kernel containing multiple syntactic relationship rules *(Pages 119-120; Fig. 4)*.

With respect to **Claim 5**, Cardie discloses searching through gap filler syntactic relation candidates for an antecedent in a lexically indexed control kernel before implementing the syntactic relation (rule) in a finalized parse structure *(Page 120; Fig. 6)*.

With respect to **Claim 6**, Cardie recites a means for ruling out certain syntactic relations (rules) for a particular antecedent *(Page 120; and the No Filled Gap Effect, Page 122)*.

With respect to **Claim 7**, Cardie discloses an example of utilizing subject and direct object rules in reconsidering a gap filler hypothesis *(Filled Gap Effects, Page 121)*.

With respect to **Claim 8**, Cardie teaches a syntax relation list stored within a lexically indexed control kernel, indicating that an antecedent within a phrase may have a syntactic relationship to a token somewhere later in a sentence (Fig. 4; Page 120).

With respect to **Claim 9**, Cardie teaches a lexically indexed control kernel which points to an antecedent within a phrase *(Fig. 4, Page 120)*.

With respect to **Claim 10**, Cardie teaches syntactic roles that could be assumed by a gap if filled by an antecedent within a phrase that are stored within a lexically indexed control kernel (Fig. 4, Page 120).

With respect to **Claim 14**, Cardie discloses a constructed case frame *(Fig. 6, Page 120)*.

5. **Claims 33-36** are rejected under 35 U.S.C. 102(b) as being anticipated by Heidorn et al *(U.S. Patent: 5,966,686)*.

With respect to **Claim 33**, Heidorn recites:

A token identity field that indicates the identity of a token that could satisfy a relationship within a text segment (Fig. 44, Element 4403);

A gap location field that indicates the location of a gap in a relationship in a text segment *(logical parse tree structure, Fig. 44)*;

A role field that indicates the role the token would assume if placed in the gap *(Dobj, Fig. 44; and Fig. 29, rule 1)*.

With respect to **Claim 34**, Heidorn discloses:

The data structure is associated with a syntax node formed by combining the token with the text segment *(Fig. 44, Element 4403; Col. 14, Lines 1-27; and Fig. 29, rule 1)*.

With respect to **Claim 35**, Heidorn recites:

Identifying a segment of text that can act as a filler in a non-local relationship found in a second segment of text *("person," Col. 14, Line 1- Col. 15, Line 29; and Fig. 58)*;

Locating a first gap in a relationship in the second segment of text *(Col. 14, Line 1- Col. 15, Line 29; and Fig. 52)*;

Locating a second gap in a relationship in the second segment of text *(Col. 14, Line 1- Col 15; and Fig. 58)*;

Indicating that the filler can be placed in both the first gap and the second gap (Dsub and Dobj, Fig. 58).

With respect to **Claim 36**, Heidorn discloses:

The filler assumes one role in the first gap and a different role in the second gap *(Dsub and Dobj, Fig. 58)*.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. **Claims 17-32** are rejected under 35 U.S.C. 103(a) as being unpatentable over Cardie et al *("A Cognitively Plausible Approach to Understanding Complex Syntax," 1991)* in view of Even *(U.S. Patent: 6,393,399)*.

With respect to **Claim 17**, Cardie discloses the method for determining a linguistic relationship between an antecedent and a sentence gap, as applied to Claim 1. Cardie does not teach method implementation as a program stored on a computer readable medium, however Even teaches the concept of implementing a method for clause processing in a text string as a program stored on a computer readable medium *(Col. 3, Lines 6-20)*.

Cardie and Even are analogous art because they are from a similar field of endeavor in clause processing in a text string. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to modify the teachings of Cardie with the concept of implementing a method for clause processing in a text string as a program stored on a computer readable medium as taught by Even in order to enable any computer to generate a text processing output *(Even, Col. 3, Lines 6-20)*.

Claim 18 contains subject matter similar to Claim 4, and thus is rejected for the same reasons.

Claim 19 contains subject matter similar to Claim 5, and thus is rejected for the same reasons.

Claim 20 contains subject matter similar to Claim 7, and thus is rejected for the same reasons.

Claim 21 contains subject matter similar to Claim 3, and thus is rejected for the same reasons.

Claim 22 contains subject matter similar to Claim 8, and thus, is rejected for the same reasons.

Claim 23 contains subject matter similar to Claims 8 and 10, and thus, is rejected for the same reasons.

Claim 24 contains subject matter similar to Claim 9, and thus, is rejected for the same reasons.

Claim 25 contains subject matter similar to Claim 10, and thus, is rejected for the same reasons.

With respect to **Claims 26 and 28**, Cardie discloses IO and DO gaps in a subordinate clause that can be filled by an antecedent from a main clause *(Fig. 5; Page 120)*.

Claim 27 contains subject matter similar to Claim 10, and thus, is rejected for the same reasons.

With respect to **Claims 29 and 30**, Cardie discloses case frames indicating syntactic structure *(Figs. 4-6; Page 120)*.

Claim 31 contains subject matter similar to Claim 6, and thus, is rejected for the same reasons.

Claim 32 contains subject matter similar to Claim 26, and thus, is rejected for the same reasons.

8. **Claims 11-13** are rejected under 35 U.S.C. 103(a) as being unpatentable over Cardie et al *("A Cognitively Plausible Approach to Understanding Complex Syntax," 1991)* in view of Budzinski et al (U.S. Patent: 5,715,468).

With respect to **Claim 11**, Cardie teaches a means for determining a linguistic relationship between an antecedent and a sentence gap that utilizes a list of syntactic attributes stored in a lexically indexed control kernel, as applied to Claim 9. Although, not specifically disclosed, it would be inherent within the teachings of Cardie that an antecedent could comprise a compound object linked by a conjunction (multiple licensing elements that would be capable of filling a sentence gap; for example- "The policeman saw the boy and the girl..."), however no conjunction identification means is disclosed by Cardie. As evidenced by Budzinski, however, the use of conjunction understanding in natural language processing is well known in the art *(Col. 110, Line 65- Col. 114, Line 11)*.

Cardie and Budzinski are analogous art because they are from a similar field of endeavor in natural language parsing systems. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to modify the teachings of Cardie with the means for conjunction understanding as taught by Budzinski in order to simplify clause relationships in natural language parsing *(Budzinski, Col. 21, Lines 11-19)*.

Claim 12 contains subject matter similar to claim 9, and thus is rejected for the same reasons.

With respect to **Claim 13**, Cardie further teaches multiple roles capable of being assigned to antecedents when used in a gap filling process *(S, DO, IO, PP, Fig. 4, Page 120)*.

Allowable Subject Matter

9. **Claims 15-16** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. The following is a statement of reasons for the indication of allowable subject matter:

With respect to **claim 15**, the prior art of record fails to fairly teach or explicitly suggest an attribute list having a hierarchy related to a hierarchy of clauses in an input text that is used to construct a sentence argument structure by filling a gap in a linguistic relationship between a token and a segment of text (clause) in combination with the subject matter recited in claims 1-4, 8-9, and 14. Although Cardie teaches a lexically indexed control kernel having a list of syntactic attributes (Fig. 4), the list taught by Cardie has no particular order, and therefore, no order that is based upon a hierarchy of clauses in an input text.

Other related prior art:

Although Jensen *(U.S. Patent: 5,146, 406)* teaches a system for determining a long distance relationship between separated elements within a sentence (Col. 9, Line 36- Col. 12, Line 16) and notes the importance of ordered procedures when determining a long-distance relation to a clause, Jensen does not teach ordering syntactic attributes or that such an ordering is based upon a hierarchy of clauses in an input text.

Claim 16 further limits claim 15, and thus, also contains allowable subject matter.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Baldwin *("Relative Clause Coordination and Subordination in Japanese," 1997)*- teaches a system for analyzing gapping in relative clauses.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James S. Wozniak whose telephone number is (571) 272-7632. The examiner can normally be reached on M-Th, 7:30-5:00, F, 7:30-4, Off Alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Hudspeth can be reached at (571) 272-7843. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

James S. Wozniak
2/27/2006

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